

Claims

- [c1] 1.A night vision system for a vehicle comprising:
a pulsed light source for illuminating a region proximate the vehicle, said light source operating at a predetermined pulse timing;
a light sensor for generating a light intensity signal in response to detecting light at approximately the same wavelength as light from said light source; and
a controller programmed to receive first and second light intensity signals from said light sensor corresponding to first and second time periods between pulses of said light source, compare said first and second light intensity signals, and modify said light source pulse timing as a function of a difference or ratio between said first and second light intensity signals.
- [c2] 2.A night vision system according to claim 1 comprising a gated receiver for receiving light reflected off objects illuminated in said region by said pulsed light source and generating a signal responsive to said received light, and wherein said pulsed light source is a laser diode operating at a duty cycle of less than 50%.
- [c3] 3.A night vision system according to claim 1 wherein said light sensor is a photocell or photodiode.
- [c4] 4.A night vision system according to claim 1 wherein said light sensor is a camera.
- [c5] 5.A night vision system according to claim 1 wherein said controller is programmed to modify said light source pulse timing by a fixed amount when said ratio or difference value exceeds a threshold value.
- [c6] 6.A night vision system according to claim 1 wherein said controller is programmed to modify said light source pulse timing by a variable amount related to said ratio or difference value.
- [c7] 7.A night vision system according to claim 6 wherein said controller is programmed to modify said light source pulse timing to occur earlier when said first light intensity signal is greater than said second light intensity signal.

[c8] 8.A method for an active night vision system for a vehicle comprising:
pulse activating a light source to illuminate a region proximate the vehicle, said
light source operating at a first wavelength and predetermined pulse timing;
detecting light at said first wavelength during a first time period between
respective pulses of said light source to generate a first light intensity value;
detecting light at said first wavelength during a second time period between
respective pulses of said light source to generate a second light intensity value;
and
modifying said light source pulse timing as a function of a ratio or difference
between said first and second light intensity values.

[c9] 9.A method according to claim 8 wherein modifying includes modifying said
light source pulse timing by a fixed amount when said ratio or difference value
exceeds a threshold value.

[c10] 10.A method according to claim 8 wherein modifying includes modifying said
light source pulse timing by a variable amount related to said ratio or difference
value.

[c11] 11.A method according to claim 8 wherein pulse activating a light source
includes operating a laser diode at a duty cycle of less than 50%.

[c12] 12.A night vision system for a vehicle comprising:
a pulsed light source for illuminating a region proximate the vehicle, said light
source operating at a predetermined pulse timing;
a light sensor for generating a light change signal between pulses of said light
source in response to detecting a change in intensity of light at approximately
the same wavelength as light from said light source; and
a controller programmed to receive said light change signal from said light
sensor corresponding to a time period between pulses of said light source, and
modify said light source pulse timing as a function of said light change signal.

[c13] 13.A night vision system according to claim 12 comprising a gated receiver for
receiving light reflected off objects illuminated in said region by said pulsed
light source and generating a signal responsive to said received light, and

wherein said pulsed light source is a laser diode operating at a duty cycle of less than 50%.

- [c14] 14.A night vision system according to claim 12 wherein said light sensor is a photocell, photodiode, or camera.
- [c15] 15.A night vision system according to claim 12 wherein said light change value is a high-to-low signal or low-to-high signal and said controller is programmed to modify said light source pulse timing by a fixed amount in a direction corresponding to said light change signal.
- [c16] 16.A night vision system according to claim 12 wherein said light change value is a high-to-low signal or low-to-high signal and said controller is programmed to modify said light source pulse timing by a variable amount in a direction corresponding to said light change signal.
- [c17] 17.A night vision system according to claim 16 wherein said light change value is a high-to-low signal or low-to-high signal and said controller is programmed to modify said light source pulse timing to occur earlier when said light change signal is a high-to-low signal.
- [c18] 18.A method for an active night vision system for a vehicle comprising:
pulse activating a light source to illuminate a region proximate the vehicle, said light source operating at a first wavelength and predetermined pulse timing at a duty cycle less than 50%;
detecting light at said first wavelength during a first time period between respective pulses of said light source to generate a light change signal, said light change signal representing a high-to-low light change or a low-to-high light change; and
modifying said light source pulse timing as a function of said light change signal.
- [c19] 19.A method according to claim 18 wherein modifying includes modifying said light source pulse timing by a fixed amount in a direction related to said light change signal.

[c20]

20.A method according to claim 18 wherein modifying includes modifying said light source pulse timing by a variable amount in a direction related to said light change signal.

[illegible]